UTAH PLANT NOVELTIES IN ASTRAGALUS AND YUCCA

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ABSTRACT.— Astragalus iselyi and A. stocksii are described as new species. The former is from the La Sal Mountains of Grand and San Juan counties in eastern Utah, and the latter is from the Henry Mountains in eastern Garfield County, Utah. Yucca toftiae is described as new from materials collected along Glen Canyon in San Juan and Kane counties, Utah.

Studies of plant collections taken from previously unexplored or little-known regions of Utah have demonstrated the presence of taxa not included in the known descriptions of plant species of the state. Two species of *Astragalus* and one of *Yucca* are included in the new entities. The La Sal Mountains and the Henry Mountains yielded the *Astragalus* species. The *Yucca* is from the margin of Glen Canyon.

Astragalus iselyi Welsh sp. nov.

Fig. 1

A Astragalo sabuloso Jones differt floribus parvioribus et petalis albidioribus carina immaculata et leguminibus parvioribus.

Herba perennis radice palari forti et caudice ramificanti; caules 8-25 cm alti recti aut ascendentes; stipulae 3-9 mm longae firmae purpurascentes amplectentes sed non connatae; folia 3.2-8.5 cm longa; foliola (3) 5-11 (13), 7-23 mm longa, 3-9 mm lata elliptica ad rhombica strigosa pilis simplicibus utrinque glabrescens; pedunculi 1.7-10 cm longi; racemi 1.2-3 cm longi, floribus 7 ad multus; bracteolae nullae; calyx strigulosus tubo cyclindrico 5.5-6.3 mm longi dentibus 1.8-3.1 mm longis; subulatis; flores 17-18 mm longi, petalis ochroleucis, carina apice immaculato; legumina 25-32 (38) mm longa stricta subcylindrica unilocularia coriacea strigosa.

UTAH: San Juan Co., La Sal Mts., Brumley Ridge, ca. 1.5 miles north of Pack Creek Ranch, on Morrison formation, in pinyonjuniper community, S. L. Welsh 10970, 5 May 1971 (Holotypus BRY; Isotypi ISC, and many others); same locality, J. Pederson 23, 29 March 1967 (BRY); S. Daines 39, 5 May 1971 (BRY); C. Schoener 75, 11 June 1971 (BRY). Grand Co., Paradox formation. gypsiferous clay, Onion Creek, Fisher Valley, S. L. Welsh 11929, 11929a, 30 May 1973 (BRY).

Astragalus iselyi is a near congener of A. sabulosus Jones. It is similar in habit, leaflet shape and number, and pod features. The flowers are consistently smaller in all parts. Even the average pod size seems smaller than in A. sabulosus. The flowers of A. iselyi are only 17-18 mm long, whereas those of A. sabulosus are 28-31 mm long. Both of these entities complete flowering during early springtime, and it seems probable that the existence of A. iselyi has been

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Fig. 1. Astragalus iselyi. A, Habit sketch; B, Detail of pods.

obscured by the fact that most previous specimens were collected in fruit only.

It seems certain that the phase of the sabulosus-iselyi complex with massive flowers is that known as A. sabulosus. The measurements set forth in the original description (Jones, 1891) and in the Revision of North American Species of Astragalus (Jones, 1923:156-157) are those of the phase including the type of A. sabulosus. Materials collected on the La Sal Mountains by Rydberg and Garrett (9088, 19 July 1911 UT) and by Maguire et al. (16536, 14 July 1933 UTC) are almost assuredly A. iselyi. From the present information, it seems that A. sabulosus is a plant of bajadas and drainages over Mancos Shale in the Thompson-Cisco region of Grand County. A. iselyi is also a selenophyte, but grows on the Paradox and Morrison formations on the foothills of the La Sal Mountains.

This species is named in honor of Duane Isely, legume specialist, teacher, colleague, and philosopher.

Astragalus stocksii Welsh sp. nov.

Fig. 2

Species habitu cum Astragalo musiniensi Jones differt foliolis plus numerosis floribus parvioribus ochroleucis et leguminibus strigosis.

Herba perennis acaulis, caudice ligneo ramificanti, ferenti petiolis marcescentibus; stipulae lanceolatae 3-5 mm longae strigosae librae: folia 2.7-10.6 cm longa; foliola 7-13 mm longa obovata oblonglanceolata vel elliptica, plumbea aut argentea, supra viridia saepe, strigosa utrinque, truncata ad mucronata aut acuta ad apicem; pedunculus 1.1-4 cm longus; racenus (2) 3-8 floribus, compactus: bracteae lanci-subulatae, strigulosae; flores ascendentes, 15-16 mm longi; calyx strigulosus, tubo cylindrico, 9-9.2 mm longo, dentibus lanci-subulatis 2-2.8 mm longis; corolla ochroleuca, venis purpurescentibus, carina-apice maculata; alis apicibus purpurescentibus; legumina unilocularia, compressa lateralle, lanci-ovoidea, rostro elongato tenui contracto, stricta aut arcuata, strigosa.

UTAH: Garfield Co., Henry Mountains, Penellen Pass, S. L. Welsh 11740, 30 May 1972 (Holotypus BRY; Isotypi US, LSC). Near same locality, S. L. Welsh 9817, 16 May 1970 (BRY, distributed as *A. newberryi* Gray): S. L. Welsh 11739, 11751, 30 May 1972 (BRY, Paratypes).

Astragalus stocksii is compared to the distinctive A. musiniensis Jones in the above description. It is indeed similar to that entity both in having a persistent thatch of petioles and in shape and texture of the pods. Habitually it is apparently nearer to A. newberryi Gray and to A. eurckensis Jones. From the former, A. stocksii differs in the smaller, paler flowers and merely strigose pods, and from the latter it differs in having smaller flowers and merely strigose pods.

The species is named in honor of the late Davua L. Stocks, botanist, teacher, and extraordinary human being.



Fig. 2. Astragalus stocksii. A, Habit sketch; B, Detail of pod.

Yucca toftiae Welsh sp. nov. Fig. 3

Differt haec species a Yucca angustissima in uterque amplitudine et habitu.

Planta acaulescens vel brevicaulescens, solitaria vel caespitosa; caules 0-7 (10) dm alti; folia 2-7.5 dm longa, 0.4-1.7 cm lata linearia



Fig. 3. Yucca toftiae. A. Habit sketch: B. Detail of leaf; C. Detail of flower; D. Detail of capsule and seeds.

plano-convexa vel concavo-convexa ad plano-carinata effusa rigide, viridia vel flavo-viridia, margo filifer; inflorescentiae 1.2-3.4 m altae, scapi folia 2-vel 6-plo longior; paniculae lineares vel ovoidae, 2.5-20 dm longae, ramulis 0-12 (23); flores numerosi globosi vel campanulati albi, cremei, vel viriduli plerumque exti rubro-purpurei suffusi, segmenta elliptica vel lanc-ovata, acuta; sepala 2.5-4.6 cm longa; petala 31-52 mm longa; filamenti staminale 7-24 mm longa; pistila 15-32 mm longa; styli (3) 7-11 mm longi; capsulae erectae, 3.5-5.5 (6) cm longae, cylindricae, plurumque constrictae, ligneae et persistentes.

UTAH: San Juan Co., Three Gardens, ca. 1 mile north of confluence of San Juan and Colorado rivers, Lake Powell, S. L. Welsh 11935a, 4 June 1973 (Holotypus BRY; Isotypi US, NY). Ribbon Canyon garden, east side of Lake Powell at ca. mile 66, N. D. Atwood 4112, 10 June 1972 (BRY). Kane Co., tributary of Dry Rock Creek, Lake Powell, S. L. Welsh and G. Moore 11779, 4 June 1972 (BRY).

This entity grows on sandy alluvium and on sandstone outcrops along the shores of Lake Powell in Glen Canyon of eastern Kane and western San Juan counties, Utah. The affinities of Y. toftiae are with Y. angustissima Englem ex Trel, from which it differs in both size and habit. Habitually, Y. toftiae is similar to Y. utahensis Mckelvy and Y. verdiensis Mckelvy. From the former it differs in the inflorescence which branches only near the base (or not at all), and from the latter in the short pistils and longer woody capsules.

This striking taxon is named in honor of Catherine Ann Toft, botanist.

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